

## CLAIMS

1. A method of operating a power system, the method comprising  
the steps of:

operating an internal combustion engine so as to produce an engine  
5 vacuum, and  
advancing air through a fuel reformer with the engine vacuum.

2. The method of claim 1, further comprising the step of  
advancing a reformat gas produced by the fuel reformer to an intake of the engine  
10 with the engine vacuum.

3. The method of claim 2, further comprising the step of  
advancing the reformat gas produced by the fuel reformer to an emission abatement  
device.

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4. The method of claim 2, wherein:  
the reformat gas comprises a hydrogen-rich gas, and  
the reformat gas advancing step comprises advancing the hydrogen-  
rich gas to the intake of the engine with the engine vacuum.

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5. The method of claim 1, further comprising the step of  
advancing a reformat gas produced by the fuel reformer to an emission abatement  
device.

6. The method of claim 1, wherein:  
the fuel reformer has an inlet and an outlet, and  
the advancing step comprises generating a pressure drop across the fuel  
reformer from the inlet to the outlet with the engine vacuum.

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7. The method of claim 1, wherein:  
the fuel reformer comprises a plasma fuel reformer having an air inlet  
and a reformat gas outlet, and  
the advancing step comprises generating an outlet pressure at the  
10 reformat gas outlet which is less than an inlet pressure at the air inlet.

8. The method of claim 1, wherein the fuel reformer comprises a  
plasma fuel reformer having a gas outlet, further comprising the step of advancing a  
reformat gas produced by the plasma fuel reformer from the gas outlet to an intake of  
15 the engine with the engine vacuum.

9. The method of claim 8, wherein:  
the reformat gas comprises a hydrogen-rich gas, and  
the reformat gas advancing step comprises advancing the hydrogen-  
20 rich gas from the gas outlet of the plasma fuel reformer to the intake of the engine  
with the engine vacuum.

10. The method of claim 1, wherein the advancing step comprises  
operating a turbocharger with the engine vacuum to advance air through the fuel  
25 reformer.

11. The method of claim 10, further comprising advancing a reformat gas produced by the fuel reformer to an emission abatement device.

12. A power system, comprising:  
5 an internal combustion engine having an intake, wherein (i) the engine is operable in an actuated mode of operation, and (ii) an engine vacuum is present at the intake when the engine is operated in the actuated mode of operation, and  
a fuel reformer having an outlet fluidly coupled to the intake, wherein the engine vacuum causes air to be advanced through the fuel reformer when the  
10 engine is operated in the actuated mode of operation.

13. The power system of claim 12, wherein the engine vacuum further causes reformat gas from the fuel reformer to be advanced from the outlet of the fuel reformer to the intake of the engine when the engine is operated in the  
15 actuated mode of operation.

14. The power system of claim 13, wherein the reformat gas comprises hydrogen.

20 15. The power system of claim 12, wherein:  
the fuel reformer has an inlet, and  
the engine vacuum generates a pressure drop across the fuel reformer from the inlet to the outlet when the engine is operated in the actuated mode of operation.

25 16. The power system of claim 12, wherein the fuel reformer comprises a plasma fuel reformer.

17. A method of operating a power system, the method comprising the steps of:

operating an internal combustion engine so as to produce an engine vacuum, and

5                   advancing reformat gas from a fuel reformer to an intake of the engine with the engine vacuum.

18. The method of claim 17, wherein:

the fuel reformer has an outlet, and

10                   the advancing step comprises generating a pressure drop across a conduit from the outlet of the fuel reformer to the intake of the engine with the engine vacuum.

19. The method of claim 17, wherein:

15                   the fuel reformer comprises a plasma fuel reformer having a reformat gas outlet, and

the advancing step comprises generating an intake pressure at the intake of the engine which is less than an outlet pressure at the reformat gas outlet.

20                   20. The method of claim 17, wherein:

the reformat gas comprises a hydrogen-rich gas, and

the advancing step comprises advancing the hydrogen-rich gas to the intake of the engine with the engine vacuum.